

07/23/01  
JC970 U.S. PTO

07-25-01

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PTO/SB/05 (11-00)  
Approved for use through 10/31/2002. OMB 0651-0032  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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# UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No. P1544D1  
First Inventor Dan Kikinis  
Title Enhanced Integrated Data Delivery System  
Express Mail Label No. EL657627814US

JC997 U.S. PTO  
09/911945  
07/23/01

## APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)  
(Submit an original and a duplicate for fee processing)
2. ☒ Applicant claims small entity status.  
See 37 CFR 1.27.
3. ☒ Specification [Total Pages 20]  
(preferred arrangement set forth below)
  - Descriptive title of the invention
  - Cross Reference to Related Applications
  - Statement Regarding Fed sponsored R & D
  - Reference to sequence listing, a table, or a computer program listing appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure
4. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 3]
5. Oath or Declaration [Total Pages 2]
  - a. ☐ Newly executed (original or copy)
  - b. ☒ Copy from a prior application (37 CFR 1.63 (d))  
(for continuation/divisional with Box 18 completed)
    - i. ☐ **DELETION OF INVENTOR(S)**  
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ Application Data Sheet. See 37 CFR 1.76

ADDRESS TO: Assistant Commissioner for Patents  
Box Patent Application  
Washington, DC 20231

7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
  - a. ☐ Computer Readable Form (CRF)
  - b. Specification Sequence Listing on:
    - i. ☐ CD-ROM or CD-R (2 copies); or
    - ii. ☐ paper
  - c. ☐ Statements verifying identity of above copies

## ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement ☒ Power of Attorney  
(when there is an assignee)
11. ☐ English Translation Document (if applicable)
12. ☒ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503)  
(Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s)  
(if foreign priority is claimed)
16. ☐ Request and Certification under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. ☒ Other: Check for fees

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☒ Divisional ☐ Continuation-in-part (CIP) of prior application No.: 08/868,065  
Prior application information: Examiner J. Cardone Group Art Unit: 2152

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

## 19. CORRESPONDENCE ADDRESS

☒ Customer Number or Bar Code Label 24739 or ☐ Correspondence address below

Name

Address

City

State

Zip Code

Country

Telephone

Fax

Name (Print/Type)

Donald R. Boys

Registration No. (Attorney/Agent)

35,074

Signature

*[Signature]*

Date

07/23/2001

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# FEE TRANSMITTAL for FY 2001

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT (\$ ) 395.00

## Complete if Known

Application Number	NA
Filing Date	07/23/2001
First Named Inventor	Dan Kikinis
Examiner Name	NA
Group Art Unit	NA
Attorney Docket No.	P1544D1

## METHOD OF PAYMENT

- 1.
- ☒
- The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number 50-0534

Deposit Account Name Mark Boys

☒ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17☒ Applicant claims small entity status. See 37 CFR 1.27

- 2.
- ☒
- Payment Enclosed:

☒ Check ☐ Credit card ☐ Money Order ☐ Other

## FEE CALCULATION

## 1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
101 710	201 355	Utility filing fee	355.00
106 320	206 160	Design filing fee	
107 490	207 245	Plant filing fee	
108 710	208 355	Reissue filing fee	
114 150	214 75	Provisional filing fee	

SUBTOTAL (1) (\$ ) 355.00

## 2. EXTRA CLAIM FEES

Total Claims 14 - 20\*\* = 0 X 9 = 0.00

Independent Claims 4 - 3\*\* = 1 X 40 = 40.00

Multiple Dependent            = 0.00

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
103 18	203 9	Claims in excess of 20
102 80	202 40	Independent claims in excess of 3
104 270	204 135	Multiple dependent claim, if not paid
109 80	209 40	** Reissue independent claims over original patent
110 18	210 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$ ) 40.00

\*\*for number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

## 3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
105 130	205 65	Surcharge - late filing fee or oath	
127 50	227 25	Surcharge - late provisional filing fee or cover sheet	
139 130	139 130	Non-English specification	
147 2,520	147 2,520	For filing a request for <i>ex parte</i> reexamination	
112 920*	112 920*	Requesting publication of SIR prior to Examiner action	
113 1,840*	113 1,840*	Requesting publication of SIR after Examiner action	
115 110	215 55	Extension for reply within first month	
116 390	216 195	Extension for reply within second month	
117 890	217 445	Extension for reply within third month	
118 1,390	218 695	Extension for reply within fourth month	
128 1,890	228 945	Extension for reply within fifth month	
119 310	219 155	Notice of Appeal	
120 310	220 155	Filing a brief in support of an appeal	
121 270	221 135	Request for oral hearing	
138 1,510	138 1,510	Petition to institute a public use proceeding	
140 110	240 55	Petition to revive - unavoidable	
141 1,240	241 620	Petition to revive - unintentional	
142 1,240	242 620	Utility issue fee (or reissue)	
143 440	243 220	Design issue fee	
144 600	244 300	Plant issue fee	
122 130	122 130	Petitions to the Commissioner	
123 50	123 50	Petitions related to provisional applications	
126 240	126 240	Submission of Information Disclosure Stmt	
581 40	581 40	Recording each patent assignment per property (times number of properties)	
146 710	246 355	Filing a submission after final rejection (37 CFR § 1.129(a))	
149 710	249 355	For each additional invention to be examined (37 CFR § 1.129(b))	
179 710	279 355	Request for Continued Examination (RCE)	
169 900	169 900	Request for expedited examination of a design application	

Other fee (specify) \_\_\_\_\_

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ ) 0.00

## SUBMITTED BY

Name (Print/Type)	<u>Donald R. Boys</u>	Registration No. (Attorney/Agent)	<u>35074</u>	Telephone	<u>(831) 726-1457</u>
Signature		Date	<u>07/23/2001</u>		

## Complete (if applicable)

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

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FOI 2005-0301

## Certificate of Express Mailing

"Express Mail" Mailing Label Number: EL657627814US

Date of Deposit: 07/23/2001

Ref: Case Docket No.: P1544D1

First Named Inventor: Dan Kikinis

Serial Number: NA

Filing Date: 07/23/2001

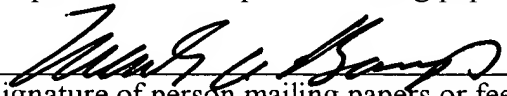
Title of Case: Enhanced Integrated Data Delivery System

I hereby certify that the attached papers are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and addressed to the Commissioner of Patents and Trademarks, Washington D.C. 20231

1. Utility patent application transmittal.
2. 20 sheets of specification.
3. 3 sheets of drawings.
4. Fee transmittal.
5. Duplicate fee transmittal.
6. Information Disclosure Statement by Applicant.
7. Copy of Disclosure document papers filed in the parent case
8. Declaration and Power of Attorney.
9. Check for fees in the amount of \$395.00.
10. Certificate of express mailing.
11. Postcard listing contents.

Mark A. Boys

(Typed or printed name of person mailing paper or fee)

  
(Signature of person mailing papers or fee)

FOC2240-546T660

IN THE UNITED STATES PATENT AND TRADEMARK  
OFFICE

In Re: Dan Kikinis  
Case: P1544  
Serial No.:  
Filed:  
Subject: Enhanced Integrated Data Delivery System



Notice of Filing Under  
Disclosure Document Procedure

COPY

To the Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Dear Sir,

The above-referenced invention was the subject of a disclosure filed under the Disclosure Document program on May 13, 1997 with a slightly different title: "An Enhanced Internet Delivery System". At the present time of filing the Disclosure Document program has not returned a number for the disclosure. The Applicant respectfully requests that the Disclosure Document be retained and appropriate notations be made in the files to cross-correlate that disclosure document and the above-referenced patent application.

Sincerely,  
Dan Kikinis

by

Donald R. Boys  
Reg. No. 35,074

Donald R. Boys  
Central Coast Patent Agency  
P.O. Box 187  
Aromas, CA 95004  
(408) 726-1457

JC997 U.S. PTO  
09/911945  
07/23/01


**CENTRAL COAST PATENT AGENCY**  
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DATE 6/03/97

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Four hundred twenty-five and 00/100 DOLLARS

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WATSONVILLE, CALIFORNIA 95076

MEMO (P1544) Carol Sue Boys MP

⑆1213909616612050502527⑈

SAFETY PAPER

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Submitted in Case 1544:

06/03/97

1. Transmittal in above-referenced case entitled, "Enhanced Integrated Delivery System"
2. Specification
3. Drawings (3 sheets)
4. Declaration and Power of Attorney
5. Verified Small Entity Statement
6. Cross-reference to Document Disclosure
7. Express Mail Certificate
8. Self-addressed postcard
9. Check for fee in amount \$425.

Certificate of Express Mailing

JC997 U.S. PTO  
09/911945



"Express Mail" mailing label number EH688171180US  
Date of Deposit 6/03/97  
Re: Case P1544  
Serial Number \_\_\_\_\_  
Filed \_\_\_\_\_  
Subject Enhanced Integrated Delivery System

I hereby certify that the attached papers are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and addressed to the Commissioner of Patents and Trademarks, Washington D.C. 20231

1. Specification in referenced case
2. Drawings (3 sheets)
3. Declaration and Power of Attorney
4. Verified Small Entity Statement
5. Cross-reference to Document Disclosure
6. Transmittal
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Donald R. Boys

(Typed or printed name of person mailing paper or fee)

(Signature of person mailing paper or fee)

1544

DISCLOSURE DOCUMENT NO.

419863

Commissioner of Patents and Trademarks  
Washington, D.C. 20231



FILING FEE: \$10.00  
RETAINED FOR 2 YEARS  
THIS IS NOT A PATENT APPLICATION

PTO-1652 (4/96)

Title: An Enhanced Internet Delivery System



Attached is a disclosure of the above-referenced invention consisting of 4 pages of written description and drawings. A check for \$10.00, a stamped, self-addressed envelope, and a duplicate of this letter are also enclosed.

It is respectfully requested that this disclosure be accepted and retained for two years under the Document Disclosure program. It is understood that the disclosure may be retained longer if it subsequently referenced in a paper filed in a patent application. It is also requested that the duplicate copy of this letter be stamped, numbered, and returned in the enclosed envelope.

The undersigned understands that (1) this disclosure document is neither a patent application nor a substitute for a patent application, (2) its receipt date will not become the effective filing date of a later-filed patent application, (3) it will be retained for two years and then destroyed unless it is referenced in a patent application, (4) this two-year retention period is not a "grace" period during which a patent application can be filed without loss of benefits, (5) in addition to this document, proof of diligence in building and testing the invention, and/or filing a patent application on the invention, may be vital in case of an interference, and (6) if such building and testing is done, signed and dated records of such should additionally be made and these should be witnessed by disinterested individuals.

Respectfully,

COPY

Inventor: Dan Kikinis

Inventor's Signature: [Signature] Date: 5/13/97

Address: 20264 Ljepava Drive

Saratoga, CA 95070

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir,

**Request for Participation in Document Disclosure Program**

Title: An Enhanced Internet Delivery System

Attached is a disclosure of the above-referenced invention consisting of 4 pages of written description and drawings. A check for \$10.00, a stamped, self-addressed envelope, and a duplicate of this letter are also enclosed.

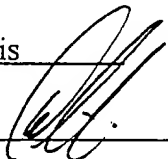
It is respectfully requested that this disclosure be accepted and retained for two years under the Document Disclosure program. It is understood that the disclosure may be retained longer if it subsequently referenced in a paper filed in a patent application. It is also requested that the duplicate copy of this letter be stamped, numbered, and returned in the enclosed envelope.

The undersigned understands that (1) this disclosure document is neither a patent application nor a substitute for a patent application, (2) its receipt date will not become the effective filing date of a later-filed patent application, (3) it will be retained for two years and then destroyed unless it is referenced in a patent application, (4) this two-year retention period is not a "grace" period during which a patent application can be filed without loss of benefits, (5) in addition to this document, proof of diligence in building and testing the invention, and/or filing a patent application on the invention, may be vital in case of an interference, and (6) if such building and testing is done, signed and dated records of such should additionally be made and these should be witnessed by disinterested individuals.

COPY

Respectfully,

Inventor: Dan Kikinis

Inventor's Signature: 

Date: 5/13/97

Address: 20264 Ljepava Drive

Saratoga, CA 95070



# An Enhanced Internet Delivery System

*By Inventor  
Dan Kikinis*

COPY

5

## Background of the Invention

Internet Service Providers typically use land-based telephone lines,  
10 including ISDN lines. When it is necessary to transmit large files, capacity becomes quickly very limited, which limits the usability of such a system. There are also satellite-based Internet delivery systems which are capable of big bursts of speed. However, when there are a large number of subscribers on the network, effective bandwidth becomes rather limited due to  
15 averaging and sharing between many users. However, very often only small packages need be sent, especially from the user to the network. Hence it makes sense to have a combination of land-line and satellite line.

What is needed is a combination land and satellite system wherein the travel time is optimized based on the size of the package and the current  
20 latency of the satellite delivery based on the bandwidth and the queue backed-up and waiting for delivery through the satellite system.

## Description of a Preferred Embodiment

25 Fig. 1 illustrates a topology for a system according to a preferred embodiment of the present invention. A user at computer 142 is connected via modem 141 by link 114 through the Public Switched Telephone Network 121 and link 113 to a proxy server 100, which is Internet connected for browsing via link 111.

30 When information is downloaded from the Internet by proxy server 100, the information can be delivered to user system 142 via link 133, PSTN 121, link 114, and modem 141; or, delivery may alternatively be made via link 112 to a server 101 which uplinks via connection 115 and dish 122 to satellite 123, thence to dish 144 and link 116 to satellite modem  
35 143 and on the user system 142, which may be a personal computer (PC).

In this invention in particular the queues for waiting in server 101 are handled by software. When data comes into sever 100 with a session connection 240 running on link 111, then TCP stack 200 on the server side can make a decision based on the size of the package and on the size of the  
40 queues 260 and 261 in server 101 based on negotiation through link 241. The multilink PPP (drivers) 201a and 201b of TCP stack 200 can decide

which path to use to transmit data to the user system 142. That is, whether to pass the packet via link 241 and thence the satellite path, or directly via path 242, which is a small capacity land line connection.

Typically the capacity on the land line will be between 14.4 kbps on the low side and 128 kbps (ISDN) on the high side. For the satellite path the capacity will typically be between about 5 Mbps and 30 Mbps. The satellite path, however, has latency for the satellite round-trip, which is several seconds, and latency of the queue for delivery to multiple other users such as system 142. Depending on the time of day and other factors there may well be a cut-off size wherein the time of delivery for the land line connection is quicker than the satellite path, even though the land line has a substantially lower capacity than the satellite path.

Other new and unique elements in the embodiment of the invention described herein include asymmetric (both in capacity, latency and directionality) PPP drivers 221a and 221b on the PC side in TCP stack 220, which are functionally matched to multilink PPP drivers 201a and 201b in the server. PPP is Point-to-Point Protocol while TCP/IP is Transfer Control Program/Internet Protocol. Both are well known Internet standards. By using a broadcast type satellite system, the cost increment for the satellite add-on can be kept at around 100 USD, which makes it an extremely attractive approach.

There could be in other embodiments multiple proxy servers negotiating with a single uplink server, or with multiple uplink servers.

In the case of having multiple uplinks, the PPP portion, 201b for example, could send through the land line via 201a negotiation as to which channel the satellite modem should be tuned to receive the packet, and when about the packet will come.

In yet another embodiment, a key could be sent by the land connection for decrypting a packet sent by satellite, so each packet could be encrypted with a separate key. This feature provides security when several people share the same bandwidth, which is the normal case. Those people could not read each other's packets because the key to decrypt satellite transmitted information is sent directly to a user by land-line, hence only the intended receiver gets the respective key, which can change for each packet or each session.

COPY

Fig. 1

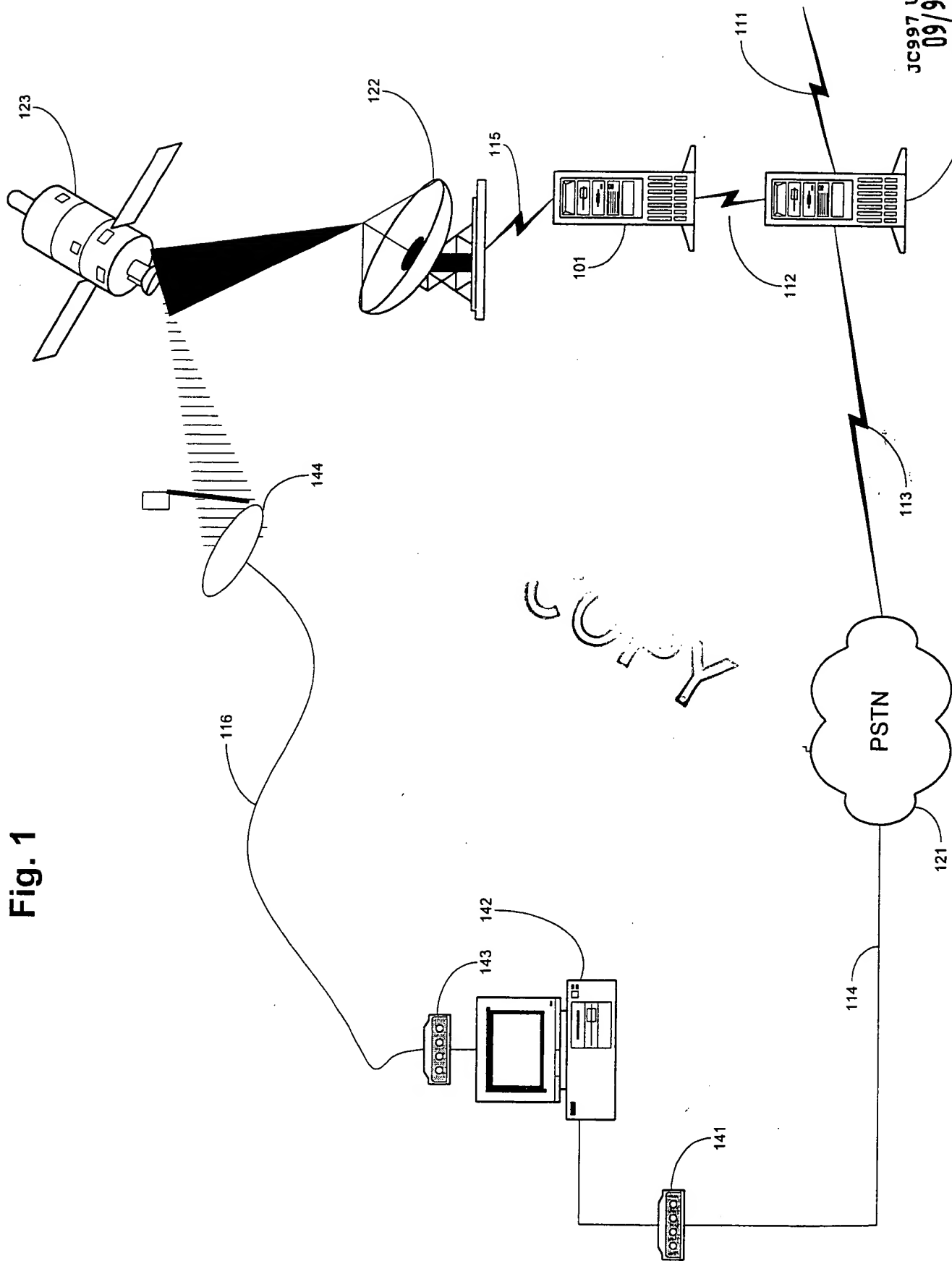
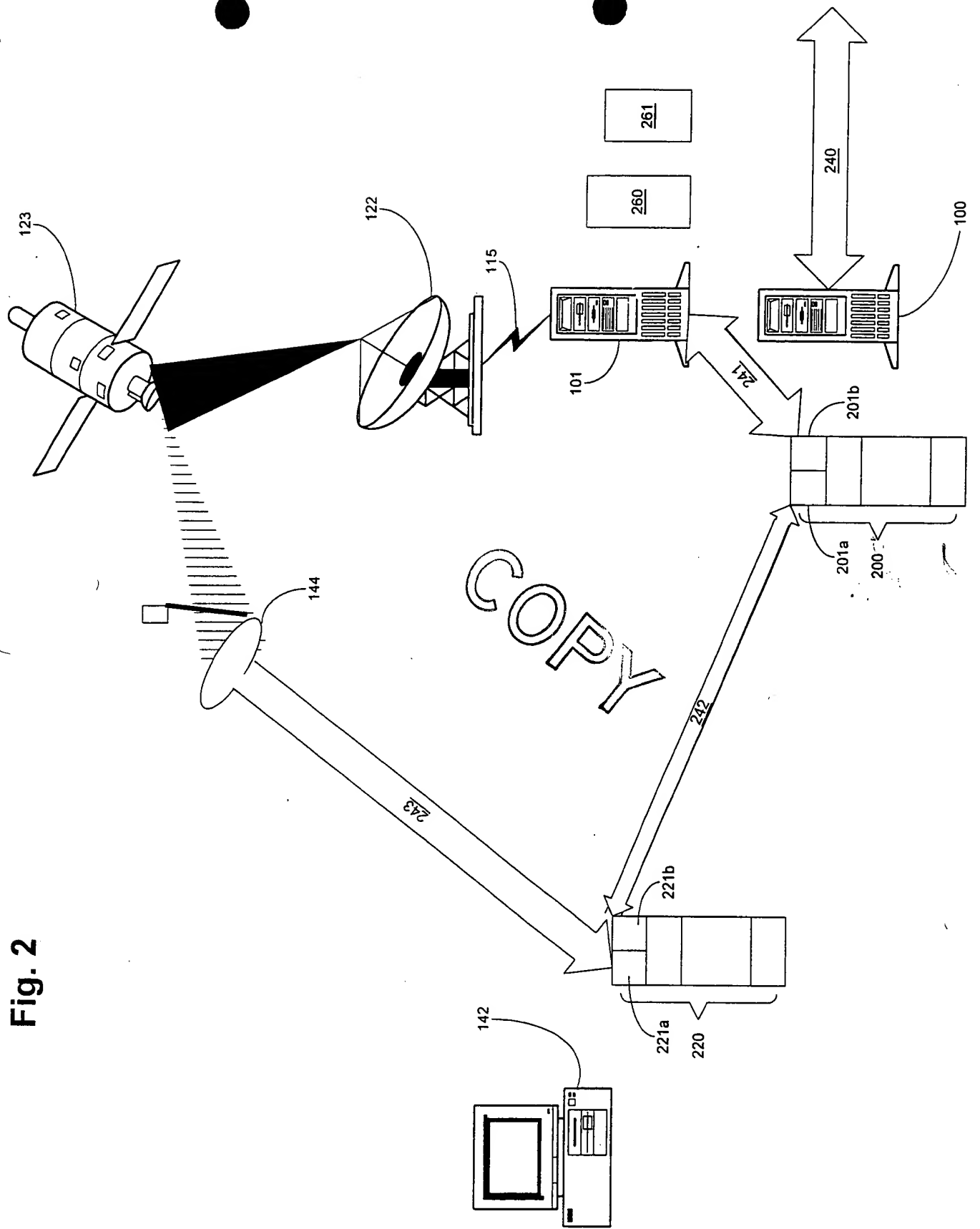



Fig. 2



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MEMO  
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90-3808  
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